Title (en)

FORGING METHOD, CLOSED FORGING MOLD AND TRIPOD UNIFORM MOTION UNIVERSAL JOINT

Title (de)

SCHMIEDEVERFAHREN, GESCHLOSSENE SCHMIEDEFORM UND TRIPODEN-GLEICHLAUFGELENK

Title (fr)

PROCÉDÉ DE FORGEAGE, MOULE DE FORGEAGE FERMÉ ET ARTICULATION UNIVERSELLE À MOUVEMENT UNIFORME À TRÉPIED

Publication

EP 2388083 A1 20111123 (EN)

Application

EP 09834681 A 20091130

Priority

- JP 2009070104 W 20091130
- JP 2008325943 A 20081222

Abstract (en)

Provided are a forging method and a full-enclosed forging die which contribute to alleviation of an enclosing force applied to dies and in which a relatively small enclosing apparatus can be used even with respect to larger-sized products. Further, provided is a tripod type constant velocity universal joint using a tripod member molded with such a full-enclosed forging die. Using a full-enclosed forging die including openable/closable dies (11, 12) and punches (14, 15) for pressing a material between the dies (11, 12), a product (tripod member) (16) including a boss portion (18) and shaft portions (17) protruded radially from the boss portion (18) is molded. A projection area in a boss-portion axial direction toward a die (11, 12) side of the boss portion (18) is made to be smaller than another projection area in the boss-portion axial direction toward the die side, the another projection area being defined when a radially outer surface is formed as a single convex curved surface about a boss-portion axial center.

IPC 8 full level

B21J 5/02 (2006.01); **B21J 13/02** (2006.01); **B21K 1/14** (2006.01); **B21K 1/76** (2006.01); **F16D 3/20** (2006.01); **F16D 3/205** (2006.01)

CPC (source: EP US)

B21J 5/02 (2013.01 - EP US); **B21J 5/025** (2013.01 - EP US); **B21K 1/762** (2013.01 - EP US); **B21K 1/763** (2013.01 - EP US); **F16D 3/2055** (2013.01 - EP US); F16D 2003/2026 (2013.01 - EP); F16D 2250/00 (2013.01 - US); F16D 2250/0023 (2013.01 - EP)

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)

US 2011224004 A1 20110915; **US 8353778 B2 20130115**; CN 102256722 A 20111123; CN 102256722 B 20131023; EP 2388083 A1 20111123; EP 2388083 A4 20160302; EP 2388083 B1 20190515; JP 2010142868 A 20100701; JP 5253991 B2 20130731; WO 2010073877 A1 20100701

DOCDB simple family (application)

US 200913129648 A 20091130; CN 200980151519 A 20091130; EP 09834681 A 20091130; JP 2008325943 A 20081222; JP 2009070104 W 20091130